



Enver Acevedo
Associate Counsel
Law Department
Consolidated Edison Company of New York, Inc.
4 Irving Place, Room 1815-S, New York NY 10003
Tel.: 212-460-3762 Fax: 212-677-5850
Email: acevedoe@coned.com

September 28, 2018

Honorable Kathleen Burgess
Secretary
State of New York Public Service Commission
Three Empire State Plaza
Albany, NY 12223-1350

Re: Case 17-G-0606 – Petition of Consolidated Edison Company of New York, Inc. for
Approval of the Smart Solutions for Natural Gas Customers Program

Dear Secretary Burgess:

Please find attached Consolidated Edison Company of New York, Inc.'s *Request For Approval Of Non-Pipeline Solutions Portfolio In The Smart Solutions For Natural Gas Customers Program*.

If there are any questions, please contact me.

Sincerely,

/s/ Enver Acevedo

Attachment

**BEFORE THE NEW YORK STATE
PUBLIC SERVICE COMMISSION**

-----X
**Petition of Consolidated Edison Company of :
New York, Inc. for Approval of the : Case 17-G-0606
Smart Solutions for Natural Gas :
Customers Program :**
-----X

**REQUEST FOR APPROVAL OF NON-PIPELINE SOLUTIONS PORTFOLIO IN THE
SMART SOLUTIONS FOR NATURAL GAS CUSTOMERS PROGRAM**

CONSOLIDATED EDISON COMPANY
OF NEW YORK, INC.

By its Attorney

Enver Acevedo
Associate Counsel
4 Irving Place, 18th floor
New York, NY 10003
(p) 212-460-3762
(f) 212-677-5850
E-mail: acevedoe@coned.com

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I. Executive Summary

Consolidated Edison Company of New York, Inc. (“Con Edison” or the “Company”) is exploring alternatives to new pipeline capacity to serve its natural gas customers as part of its Gas Smart Solutions Program. As discussed in prior Company filings in this proceeding, the Company issued a request for proposals (the “Non-Pipeline RFP” or the “RFP”) in December 2017. The Company has now extensively evaluated the proposals for their customer benefits and ability to meet future natural gas supply needs. As a result of the review process, the Company has determined that there are numerous projects that would provide meaningful benefits to customers, reduce the use of delivered services¹ and advance New York State environmental policy goals. The Company has also determined, however, that the projects to date will not be able to fully meet its expected natural gas supply needs such that it can avoid the need for incremental pipeline capacity. The Company believes that approval is appropriate and necessary because the projects it is proposing will advance new technologies and innovations that will help

¹ Delivered services are products offered by third parties that have firm contractual rights to pipeline capacity and are willing to sell the capacity bundled with natural gas commodity for a specific period of time or season (e.g., winter).

New York State lead the way to a cleaner and more sustainable future and will accordingly help to achieve policy goals.

The Company is proposing the Commission approve a \$305 million budget (excluding commodity, capacity charges and O&M) for a portfolio of non-pipeline projects (the “NPS Portfolio”), including:

- Targeted gas energy efficiency proposals for low income customers and government buildings that provide critical community services;
- Renewable thermal electrification proposals for residential geothermal heat pumps in Westchester County and air source heat pumps for multifamily customers in the Bronx;
- Renewable natural gas (“RNG”) production plants in Westchester County and New York City; and
- Trucked supplies of compressed natural gas (“CNG”) and liquefied natural gas (“LNG”) in Westchester County.

The proposed budget includes the cost of proposals the Company proposes to implement and funds needed for administration, measurement and verification, and gas system interconnection for the gas supply projects. The Company is also requesting approval for incremental O&M costs of up to \$1.7 million annually related to internal labor costs and the natural gas system interconnections. The Company expects to spend this budget over approximately six years following Commission approval.

The Company proposes to recover most of these costs over twenty years in order to match the cost recovery to the benefits provided by the projects, i.e., the average asset life of the

assets that the Company would fund for this program. This makes sense because it produces the most equitable recovery period for customers, as they change over time.

The NPS Portfolio has a benefit cost analysis ratio estimated to be 1.05, meaning that its benefits to society exceed its costs by five percent. Importantly, the analysis does not directly quantify some of the portfolio benefits. The projects in the NPS Portfolio will also enhance gas system reliability by either reducing demand or providing local gas supplies, together providing up to 84,500 dekatherms of peak day need for interstate pipeline capacity. Implementation of these programs will dedicate resources to underserved low and moderate income customers, and provide assistance to facilities providing important community services like health care, safety and education. The NPS Portfolio also includes some innovative alternatives that will encourage development of new markets. These innovative alternatives will also give the Company experience with technologies such as ground and air source heat pumps and renewable natural gas.

The Company proposes a shared savings mechanism that would allocate 70 percent of achieved net savings to customers and the balance to the Company to provide an appropriate incentive. The Company also proposes that it be provided with the flexibility to adjust the approved funding for the NPS Portfolio among projects within the portfolio and to add new projects to the NPS Portfolio, subject to the budget cap, DPS Staff oversight and a portfolio benefit cost analysis ratio greater than 1.0. Program flexibility has been proven valuable for electric non-wires programs and according the same flexibility to the Company's implement of the NPS would provide similar benefits for gas customers.

The forecasted maximum annual bill impact, including any incentive, assuming Con Edison spends the full budget by 2025, would be approximately 1.5 percent for a typical residential or small commercial heating customer (it will be less in the beginning as spending ramps up and less after the maximum year as the regulatory asset is depreciated).²

The Company requests timely Commission approval of this petition, which will increase the likelihood of a successful program because respondents more likely will be able to execute their projects as originally proposed.

II. Background

On September 29, 2017, the Company filed a petition (the “Petition”) with the Commission, seeking approval for a program called Smart Solutions for Natural Gas Customers (the “Smart Solutions Program”). Two factors drive the need for the Smart Solutions Program: (1) substantial growth in natural gas peak day usage, driven by firm heating customers on the coldest winter days, primarily resulting from customers converting to natural gas from heavy fuel oils over the past six years;³ and (2) permitting challenges recently encountered by pipeline projects that are necessary to supply the region’s growing needs.

During the recent period of substantial growth in customer peak demand, Con Edison increased its use of delivered services so that it can meet the design day peak demand. Use of delivered services enables the Company to continue to meet its peak day needs economically. Because, however, delivered services rely on third party controlled pipeline capacity, that capacity may not be available in the future. As delivered services volume increases without

² The annual bill impact calculation excludes the Company’s proposed shared savings incentive. The Company expects that the incentive for the proposed NPS Portfolio would have a minimal incremental bill impact.

³ These conversions result in substantial environmental benefits in the Company’s service territory by reducing emissions of particulate matter, criteria pollutants and carbon dioxide.

pipeline expansion, the potential delivered services supply tightens, and ultimately may not be available in some locations.⁴ In addition, customers can be exposed to higher gas prices on peak demand days.

In the Smart Solutions Program Petition, the Company proposed four non-traditional initiatives⁵ to address customer heating needs while it continues to pursue pipeline expansion. This filing (the “NPS Portfolio Filing”) focuses solely on the Non-Pipeline RFP. The Company’s goals are: procure sufficient non-pipeline assets to defer the need for incremental pipeline capacity; reduce the use of delivered services to no more than 10% of peak day needs; and support the transition to a clean energy economy. Con Edison has discussed the various components of the Smart Solutions Program, including the Non-Pipeline RFP, at rate plan collaborative meetings. Stakeholders have expressed general support for the Company’s program, although they have requested more information before providing support for a specific non-pipes portfolio. The Company provides that information in this filing. In addition, the Commission has anticipated this filing in its prior orders approving other Smart Solution program components.⁶

⁴ In addition, there is not currently any unsubscribed capacity available on any of the pipelines that serve Con Edison’s service territory.

⁵ The four non-traditional initiatives in the Smart Solutions Program are: (1) an enhanced energy efficiency program; (2) a gas demand response pilot; (3) an effort to encourage business innovation to increase customer access to renewable thermal resources via a request to the market for information (the “Gas Innovation Program”); and (4) the Non-Pipeline RFP request to the market for proposals for additional non-pipeline solutions on either the supply or demand side. The Commission, in an order issued on July 12, 2018, approved, with modifications, the enhanced energy efficiency program, and in an order issued on August 9, 2018, approved the gas demand response pilot. The Company is currently evaluating responses submitted as part of a request for information released in the Gas Innovation initiative.

⁶ See, Case 17-G-0606, *Petition of Consolidated Edison Company of New York, Inc. for Approval of the Smart Solutions for Natural Gas Customers Program*, Order Approving in Part, with Modification, and Denying in Part Smart Solutions Program (issued July 12, 2018) (“July 2018 Order”); and Case 17-G-0606, *Petition of Consolidated Edison Company of New York, Inc. for Approval of the Smart Solutions for Natural Gas Customers Program*, Order Approving with Modification Gas Demand Response Pilot (issued August 9, 2018) (“August 2018 Order”).

The Company conducted an RFP process that included substantial outreach efforts. The RFP itself and the process used to market the RFP are described in detail in Appendix E.

III. RFP Results

a. Proposals Received and Evaluation Process

Respondents submitted 28 proposals in response to the RFP, many including multiple measures or technologies.⁷ Of those proposals, 16 focused on gas usage reduction, or demand-side measures, and 12 proposed local non-pipeline supply enhancements. The proposed demand-side measures included the major categories of measures Con Edison had identified as potential alternatives, including energy efficiency, demand response, thermal storage, and high-efficiency heating electrification. The proposed supply-side measures included the types of major categories of measures targeted, including renewable natural gas, gas storage, and CNG and LNG deliveries. The 28 RFP responses, in aggregate, could reduce Con Edison's peak day natural gas demand by 65,500 dekatherms and provide 389,500 dekatherms of local supply enhancement by 2023, principally through large-scale LNG storage or deliveries of natural gas or propane by truck. The Company estimates the total cost of all proposals if accepted would have been in excess of \$2 billion.⁸

Con Edison convened more than a dozen internal experts to evaluate the proposals and recommend a portfolio of projects (the "Review Team"). The Review Team included representatives from various areas within the Company's Energy Efficiency, Gas Engineering,

⁷ The proposals submitted to the Company contain commercially-sensitive business and pricing information, and the Company treats all of the proposals as confidential, including the identity of the companies submitting proposals. In this document the Company is providing information that describe the proposals in a general way, including the technical and market characteristics of the proposals and the associated benefits, but excludes any commercially-sensitive, confidential information related to the RFP proposals.

⁸ Some proposals contained incomplete pricing information.

Gas Supply, Energy Policy and Regulatory Affairs, and Utility of the Future Departments. An external consultant observed and contributed to the Review Team’s evaluation.

The Review Team undertook a multi-step evaluation of the responses, the results of which are summarized in Table 1, characterized by technology and impact on peak day natural gas needs.

- First, the Review Team examined each response to determine whether it met the essential requirements of the RFP. Five responses were disqualified: four because they used technologies that were not commercially-proven and one because it did not include a specific commercial proposal.
- Second, the Review Team conducted an in-depth review of the remaining 23 responses, evaluating each using criteria outlined in the RFP, which included proposal content, relief provided, costs and benefits, project risk, respondent qualifications, and community impacts. Based on this review and subsequent input from experts supporting the Review Team, the Review Team determined that 17 responses, ten demand-side and seven supply-side, were sufficiently credible to merit further consideration.
- Third, the Review Team assembled a portfolio from the responses and oversaw the development of a detailed portfolio Benefit-Cost Analysis (“BCA”). At this stage, Con Edison removed a response with low BCA scores and rejected some low BCA measures from some responses to achieve a portfolio BCA higher than 1.0.
- The resulting NPS Portfolio of 16 responses is projected to provide approximately 84,500 dekatherms of peak day relief by 2023, if all the responses in the NPS Portfolio are implemented as proposed.

Table 1. RFP Responses Before and After Review Team Consideration - Potential Relief Provided (1000's of Dekatherms per Peak Day)

	All RFP Responses	Credible Proposals	NPS ⁹ Portfolio
<u>Demand-Side</u>			
Demand Response	5.8	5.8	-
Energy Efficiency	28.8	23.4	25.0
Heat Pumps	29.4	12.4	12.4
Other Electrification	0.6	0.6	-
Other Demand-Side	1.0	-	-
Subtotal	65.6	42.2	37.5
<u>Supply-Side</u>			
RNG	19.1	5.1	7.1
CNG/LNG Trucking	250.4	149.7	40.0
LNG Liquefaction	50.0	-	-
Propane-Air	70.0	-	-
Subtotal	389.5	154.7	47.1
Grand Total	455.1	197.0	84.5

The NPS Portfolio does not include all of the Non-Pipeline Solutions that Con Edison's Review Team found to be credible. In particular, as discussed below, Con Edison determined that it should not pursue all of the credible CNG and LNG trucking delivery proposals.

The Company is using herein the NPS Portfolio gross reductions from demand-side measures, consistent with the ETIP Order and the enhanced energy efficiency order issued on July 12, 2018 in this proceeding.¹⁰

⁹ The Company has worked with some RFP respondents subsequent to proposal submissions, clarifying and refining proposal elements. In some cases, this has resulted in changes in the peak day dekatherm relief provided by proposals, between the "Credible Proposals" stage and the "NPS Portfolio" stage.

¹⁰ July 2018 Order.

IV. Achievement of Goals

Con Edison should be authorized to implement the NPS Portfolio projects in order to reduce reliance on delivered services, sustain reliability, and provide economic and other benefits to its customers. The NPS Portfolio includes a combination of cost-effective demand-side and supply-side measures that will make progress towards these goals.

While the NPS Portfolio could provide substantial relief, the Company believes the NPS Portfolio does not provide a realistic pathway for Con Edison to fully address its need for additional pipeline capacity or reduced use of delivered services to a target of no more than 10 percent. As discussed in the Petition, the RFP sought to secure load reductions or local supply enhancements equivalent to 9 percent of its system-wide design day load by 2023, an amount substantially in excess of 100,000 dekatherms per day. The Company expected and informed Staff and stakeholders that meeting this goal using non-traditional solutions would be challenging.

The responses to the RFP, while substantial, will not achieve peak day dekatherm reductions necessary to eliminate or defer a pipeline. The Company determined not to pursue approximately half of the proposals because: (1) the respondent lacked qualifications; (2) the respondent did not present a feasible plan for providing the promised relief; (3) the proposal was inconsistent with state or local statutory requirements; and/or (4) the economics of the proposal were likely to be highly unfavorable for customers.¹¹ In addition, the amounts proposed by LNG

¹¹ The Company also notes there is execution risk with the responses that it has selected. For example, other funding sources, for heat pumps or energy efficiency projects, may not be available. In addition, for supply-side projects, there are significant siting and permitting hurdles. Con Edison is already working with respondents whose projects are included in the NPS Portfolio, to refine project plans and to address potential project and program risks. This work will continue while the NPS Portfolio Filing is pending with the Commission. However, execution risks cannot be completely eliminated and it is likely that some portion of the projects in the NPS Portfolio will not be

and CNG respondents were adjusted downward to reflect the siting, permitting, and system integration hurdles associated with a very large volume of trucked supplies.

The Company is pursuing additional measures to address its unprecedented load growth and support reliability. In addition to efforts described in this filing to develop alternatives to traditional pipeline capacity, the Company is taking the following actions to meet customer needs as part of its larger Smart Solutions for Natural Gas Customers effort:

- Doubling its gas energy efficiency targets for 2018, 2019 and 2020;
- Preparing to launch a gas demand response pilot in Winter 2018/2019;
- Investigating projects that could increase customer access to renewable thermal resources through business model innovation; and
- Engaging with pipeline development companies to determine whether a traditional solution to meeting customer heating needs is feasible.

The Company is also considering issuing an additional marketplace solicitation for non-pipeline resources in the near future, likely after action on this solicitation is complete. The Company is also closely monitoring regional supply/demand dynamics, and carefully evaluating the combined capability and timing of its traditional and non-traditional efforts to meet customer heating needs. As has been noted in prior comments, Con Edison remains concerned about its ability to supply continued growing customer heating demands for natural gas with currently available resources, and a temporary moratorium on new gas customer connections remains a possibility.

able to achieve the aggressive load reduction and/or local supply enhancement objectives outlined in the RFP responses.

V. BCA and Portfolio Development

Con Edison prepared the BCA in accordance with its Interim Benefit Cost Analysis Handbook for Non-Pipeline Solutions (the “Interim Gas BCA Handbook”), with the advice and assistance of a third-party evaluator. The Company is filing the Interim Gas BCA Handbook simultaneously with this NPS Portfolio Filing; the Company previously filed a draft version of the handbook on February 21, 2018. Major benefit streams considered include the impact of NPS projects on upstream capacity costs, expected gas distribution system costs, gas commodity costs, and greenhouse gas emissions. For electrification measures, the BCA also consider the impacts of these measures on the electric system and any associated greenhouse gas costs. The BCA project costs were based on the incremental cost of the planned measures. For example, the costs of air-source and ground-source heat pumps were assumed to be the difference between the cost of purchasing and installing an air-source or ground-source heat pump and the cost of purchasing and installing a code standard efficiency, gas-fired boiler and electric-powered central air conditioning. For supply-side measures, the payments and rates sought by the supplier were used as the incremental project costs, except for the cost of gas.

As a starting point, Con Edison sought to maximize the relief provided by the NPS Portfolio by including as many credible projects as possible. The Portfolio BCA, however, was below 1.0 when all of the BCA credible projects were included. As discussed above, Con Edison also chose to limit the amount of CNG and LNG trucking capacity included in the portfolio, which improved the BCA results. Con Edison then refined the portfolio by removing additional projects with scores below 1.0 to achieve a portfolio BCA higher than 1.0. The results of the BCA reference case are shown in Table 2, characterized by technology categories.

Table 2. BCA Reference Case Results

	All Credible Proposals		NPS Portfolio	
	Peak MDt/Day	BCA Results	Peak MDt/Day	BCA Results
<u>Demand-Side</u>				
Demand Response	5.8	0.17	-	-
Energy Efficiency	23.4	0.97	25.0	0.99
Heat Pumps	12.4	1.70	12.4	1.70
Other Electrification	0.6	(1.21)	-	-
Other Demand-Side	-	-	-	-
Subtotal	42.2	1.08	37.5	1.17
<u>Supply-Side</u>				
Biogas	5.1	0.86	7.1	0.83
CNG/LNG Trucking	149.7	0.29	40.0	0.54
LNG Liquefaction	-	-	-	-
Propane-Air	-	-	-	-
Subtotal	154.7	0.37	47.1	0.70
Grand Total	197.0	0.67	84.5	1.05

The excluded projects included several low-scoring demand response and electrification measures. The demand response measures were eliminated because they would increase greenhouse gas emissions or would provide limited constraint relief because of their location on Con Edison’s gas distribution system. The electrification measures that were eliminated from consideration would have installed high-efficiency domestic hot water appliances and electric-powered clothes dryers. Although electrification of domestic hot water and/or clothes dryers may be beneficial from a societal perspective, the hot water and clothes dryer measures proposed in response to the Non-Pipeline RFP were not cost effective and would have increased summertime electric demand.

In general, Con Edison sought to include as many demand-side projects with positive BCA scores in the portfolio as possible because this allowed inclusion of some projects with lower BCA scores in the NPS Portfolio that provide important qualitative benefits. Examples of these qualitative benefits include providing geographic balance, including low and moderate income customers, and upgrading buildings that provide important local benefits such as public safety, education or health services.

Con Edison also sought to include as many renewable natural gas projects as possible in the NPS Portfolio because these projects provide incremental sources of gas supply while reducing the carbon footprint of the Company's gas system.

The Company also performed two sensitivities on the BCA for the NPS Portfolio. One sensitivity tests the change in the BCA if the benefit of deferral of a new pipeline is added to the benefit streams. The BCA reference case did not include any avoided pipeline capacity costs as a benefit, because the NPS Portfolio will not enable Con Edison to eliminate or defer additional interstate pipeline capacity. A second sensitivity tests the change in the BCA if the cost of GHG emissions is increased. Under both of these cases, the BCA ratio for the NPS Portfolio was higher than in the Reference Case. The results of these sensitivities are included in Appendix B.

VI. RFP Status and Schedule

Con Edison held discussions with each of the RFP respondents whose projects are included in the NPS Portfolio. We will continue working to refine the planned projects and programs, mitigate potential project risks, and develop key commercial terms by the end of 2018. The Company will execute contracts after Commission approval.

VII. Overview and Benefits of the NPS Portfolio

a. Portfolio Overview and Budget

The NPS Portfolio includes a range of technologies and approaches encompassing demand-side and supply-side measures. Demand-side measures include significant new initiatives to deploy energy efficiency measures and electrify space heating. Selected programs and projects would target each of the major customer segments: small residential, large residential, small commercial, and large commercial. In some cases, large customers or their representatives proposed measures that would be completed at the customer's facilities. In other cases, Con Edison or an implementation contractor would implement the proposed measures that would provide rebates and/or installation services to customers. Some demand-side measures would be provided in combination with other demand-side rebate programs, while others would be stand-alone programs. Supply-side measures would include renewable gas production and CNG and LNG truck deliveries. The energy efficiency, electrification, and renewable natural gas installations would be completed at locations in both Westchester County and New York City. CNG and LNG trucking supplies would be injected into Con Edison's gas distribution system exclusively in Westchester County, where system constraints are most pronounced at this time.

The development of the NPS Portfolio projects will support the advancement of technologies and third-party businesses that will both create jobs in New York and lead to New York leading the way in new clean heating technology alternatives, advanced efficiencies and clean renewable gas development.

Table 3. Summary of NPS Portfolio by Technology

	NPS Portfolio		
	Peak MDt/Day	BCA Results	Capital Costs (\$M)
<u>Demand-Side</u>			
Demand Response	-	-	\$0.0
Energy Efficiency	25.0	0.99	\$147.8
Heat Pumps	12.4	1.70	\$74.8
Other Electrification	-	-	\$0.0
Other Demand-Side	-	-	\$0.0
Subtotal	37.5	1.17	\$222.6
<u>Supply-Side</u>			
RNG	7.1	0.83	\$68.8
CNG/LNG Trucking	40.0	0.54	\$13.8
LNG Liquefaction	-	-	\$0.0
Propane-Air	-	-	\$0.0
Subtotal	47.1	0.70	\$82.6
Grand Total	84.5	1.05	\$305.2

To implement the portfolio, Con Edison estimates that the following expenditures will likely be required:

- approximately \$199.8 million in contributions to NPS Portfolio project partners in support of NPS demand-side projects (e.g., energy efficiency program rebates) and \$62.3 million for supply-side projects in 2019-2024;
- an estimated \$20.3 million in capital costs for facilities necessary to interconnect supply-side projects;
- approximately \$6.4 million to support incentives and program implementation for new Company administered energy efficiency programs ;

- \$16.5 million in demand-side program administration costs, including measurement and verification work following program implementation;
- additional Company O&M costs up to \$1.7 million annually to oversee NPS project and program implementation, administer contracts, and operate and maintain interconnection facilities; and
- on-going payments for capacity and commodity costs for supply-side NPS projects, which will be offset, in part, by revenues from environmental credits related to renewable natural gas.

A summary of these expected costs appears below. A year-by-year accounting is presented in Appendix C.

Table 4. Summary of Non-Pipeline Solutions Portfolio Budget

	Total
	(2019-2024)
<u>Capital Costs</u>	
Demand-Side Incentives - RFP	\$199,763,656
Demand-Side Incentives - In-House Programs	\$6,402,000
Demand-Side Program Admin. (Non-Labor)	\$16,452,443
Supply-Side Capital Contributions to Partners	\$62,300,000
Supply-Side Interconnection	\$20,320,000
Total	\$305,238,099
<u>O&M Expenses</u>	
Demand-Side Program Admin. (Internal Labor)	\$4,882,080
Supply-Side Program Admin. (Internal Labor)	\$1,394,880
Supply-Side - Other O&M	\$2,880,000
Total	\$9,156,960

The requested recovery mechanisms for these different cost streams are discussed in Section VIII.

b. Demand-Side Program Details: Energy Efficiency

Con Edison seeks Commission approval to recover up to \$147.8 million of potential expenditures to undertake these additional energy efficiency initiatives, including \$130.9 million to fund programs and projects proposed by RFP respondents and an additional \$6.4 million to support additional energy efficiency programs to be implemented by Con Edison. In addition, Con Edison expects that its own administrative costs in connection with these projects and portfolios, such as measurement and verification (“M&V”) and customer engagement and marketing, will be approximately \$10.5 million between 2019 and 2024 and that it will incur \$2.8 million in additional labor costs during that period. Con Edison expects that these energy

efficiency would reduce peak day usage by approximately 25,000 dekatherms per day by November 2024.

Customer Projects: Approximately 16,400 dekatherms of peak day load reductions would be provided by RFP respondents that are Con Edison customers and have proposed to undertake projects at their own premises or have authorized contractors to do so. The respondents would achieve these reductions by installing energy efficiency measures in commercial buildings, both large and small, in institutional facilities (e.g., hospitals, schools, transitional housing and police/fire stations), and in large multi-family residential buildings, including low and moderate-income residential buildings. The planned projects involve a variety of proven measures, including, but not limited to:

- Energy management systems
- Boiler replacements
- Boiler economizers and controls
- Domestic hot water heating upgrades¹²
- Low flow showerheads and aerators
- Conversion to Con Edison district steam
- Waste heat recovery

Energy Efficiency Programs: Respondent proposals to establish new independent energy efficiency programs would provide up to 7,600 additional dekatherms of peak day usage reductions.

- One program would install measures to improve HVAC distribution efficiency, deploy boiler controls and economizers, replace boilers and upgrade domestic hot water heating

¹² Domestic hot water upgrades include, but are not limited to, installation of high-efficiency gas-fired storage tank and tankless water heaters, low-flow showerheads and aerators, and similar measures.

through more than 10,000 projects at small commercial businesses and large residential buildings throughout Con Edison's service territory.

- Another program would provide insulation, air sealing, and smart thermostats to approximately 4,500 single-family homes in Westchester County.
- A third program would provide an online platform for customers and contractors to compare the efficiency of new gas appliances, boilers, furnaces and hot water heaters, purchase them, and access rebate programs.

In-House Expanded Energy Efficiency Programs: Up to 985 dekatherms of peak day usage reductions would also be provided by Con Edison energy efficiency programs. These programs would supplement Con Edison's existing energy efficiency programs. They include additional rebates for measures undertaken by large commercial and industrial customers located within the most constrained areas of the Company's gas distribution system as well as rebate programs targeted at improving efficiency of laundry equipment and increasing the use of smart technologies to optimize use of space heating and hot water equipment. Further details regarding the in-house programs is provided in Appendix D.

The proposed in-house energy efficiency initiatives will provide a variety of benefits to customers. By reducing usage on peak days, the measures are expected to reduce the delivered services capacity Con Edison will require to serve its gas customers' needs, and defer or avoid the need for capital projects (such as main reinforcements), on Con Edison's gas distribution system. Additionally, because use of delivered services requires purchasing the associated natural gas commodity at interconnection points to Con Edison natural gas system at market rates, reducing delivered services will decrease the need for Con Edison to purchase peak day gas supplies that can be costly. Both proposed energy efficiency initiatives will reduce the need

for Con Edison to purchase gas supplies throughout the remainder of the winter season and the year. As is the case for most energy conservation measures, the proposed energy efficiency initiatives will contribute to achievement of New York State's greenhouse gas reduction goals by reducing the overall use of energy.

M&V: Con Edison will develop detailed M&V plans for the energy efficiency measures in consultation with the customers and contractors during contract negotiations. Those M&V plans will likely require verification of pre- and post-installation conditions for each RFP respondent and associated sites. Because of the large number of premises involved, Con Edison or a third-party M&V contractor will likely conduct in-person visits at a sampling of project locations. At other locations, conditions will be verified through other methods, such as review of billing records, reports submitted by the RFP respondent, telephone or email surveys, or photographs. In cases where an RFP respondent will be installing measures that require the owner or operator to make manual operating decisions to realize energy savings (e.g., for energy management systems), energy use will be monitored for a period of time after installation to confirm that savings goals are being achieved. The budget for M&V efforts to be conducted by the RFP respondents is included within the \$130.9 million budget for the energy efficiency measures described above. A third-party M&V contractor to review and confirm the validity of the RFP respondent's work will also be needed and is included in the \$10.5 million administrative budget discussed above.

Customer Engagement Efforts: Customer engagement and marketing efforts for the proposed energy efficiency initiatives will generally be conducted by the RFP respondent that will oversee program implementation. In the case of initiatives where customers have yet to be acquired, the RFP respondent will perform the bulk of the customer engagement and outreach

work, with guidance as needed and approval from Con Edison's marketing team. Con Edison's administrative costs to support the contractors is included in the \$10.5 million administrative budget discussed above.

c. Demand-Side Program Details: Heating Electrification

The Non-Pipeline Solutions portfolio includes several projects and programs aimed at advancing the deployment of air and ground-source heat pumps within Con Edison's gas service territory. The measures contemplated would seek to reduce peak day gas usage by 12,400 dekatherms by linking targeted customer groups with qualified local installers, overseeing design and installation of heat pumps, providing equipment rebates, and monitoring performance. The NPS Portfolio budget includes \$68.9 million for RFP respondent costs, \$5.9 million for Con Edison's own administrative costs related to the programs, such as its costs for measurement and verification activities and customer engagement and marketing, and \$2.1 million in additional labor costs during the 2019-2024 period.

Key elements of the electrification portion of the Non-Pipeline Solutions portfolio are programs seeking to install ground-source heat pumps at 8,800 single-family residences in Westchester County and air-source heat pumps at more than 1,000 small and mid-sized multi-family buildings currently using fuel oil for heating in the Bronx and other areas of Con Edison's service territory. An additional program would also support the installation of heat pumps to pre-heat boiler return water at more than 1,000 small commercial and large residential facilities throughout Con Edison's service territory. Buildings housing low-income tenants would be specifically targeted by some of these efforts.

Electrification Programs: This portfolio of demand-side heating electrification programs will provide benefits to Con Edison's gas customers. High-efficiency heat pumps will be used as the primary source of space heating by several customer segments, reducing customer gas usage on peak days and throughout the winter season. Con Edison's need to purchase delivered services and undertake capital improvements on its gas distribution system would be reduced, providing savings to gas consumers. Gas consumers will also purchase less gas during both high-price peak periods and other times during the heating season. In addition, the use of both air and ground-source heat pumps as a primary heating source will reduce greenhouse gas emissions over the course of the winter heating season.

During the summer months, the heat pumps installed under the projects and programs contemplated here will provide cooling at high efficiencies and have the potential to reduce electric usage compared to the similar electric equipment. Air and ground-source heat pumps provide greenhouse gas emissions benefits during the summer season.

M&V: M&V plans for the electrification included in the NPS Portfolio will be similar to those used for the energy efficiency projects and programs. Con Edison will develop detailed M&V plans in consultation with the selected RFP respondents during contract negotiations. Those M&V plans will likely require each RFP respondent to verify pre- and post-installation conditions. Because of the large number of premises involved, Con Edison or a third-party M&V contractor will likely conduct in-person visits at a sampling of project locations. In cases where an RFP respondent will be installing measures that require the owner or operator to make manual operating decisions to realize energy savings (e.g., where a back-up heating system using natural gas is maintained), energy use will likely be monitored for a period of time after installation to confirm that savings goals are being achieved. Con Edison expects to provide

regular reports on the results of the M&V efforts conducted by RFP respondents, Con Edison and any third-party M&V contractor that is retained. The budget for M&V efforts to be conducted by the RFP respondents is included within the \$68.9 million budget for the electrification measures described above. Additional funding will also be required for M&V contractor review, and is included in the \$5.9 million program administration budget.

Customer Engagement: Similar to the energy efficiency projects, customer engagement and marketing efforts for heating electrification programs will principally be conducted by the RFP respondent that will oversee program implementation, with support from Con Edison as needed. Con Edison expects that RFP respondent to engage local community organizations and raise awareness about heating electrification opportunities through marketing channels including local press, digital marketing, email campaigns and marketing partnerships with local organizations that share a goal of transitioning homeowners from fossil-based heating solutions to renewable thermal. RFP respondents will also explore marketing partnerships with distributed energy resource companies. Con Edison's administrative costs to support these efforts are included in the \$5.9 million program administration budget.

d. Supply-Side Program Details: Renewable Natural Gas

The NPS Portfolio includes several RNG projects. The projects would provide up to 7,000 dekatherms per day of peak day supply for 20 years or more in New York City and Westchester County. The NPS Portfolio budget includes \$60.5 million in capital contributions toward the construction of the RNG facilities. Con Edison also estimates that it would incur an additional \$8.3 million in capital costs for interconnection and related work, and approximately \$1.4 million in incremental O&M expenses in connection with the projects from 2019 through 2024. Con Edison will incur additional labor costs of \$1.1 million from 2019 through 2024.

The cost to purchase RNG produced by the facilities would be recovered through the Gas Cost Factor and Daily Delivered Services, and would be offset by Con Edison's share of any environmental credits the facilities accrue.

The RNG projects included in the NPS Portfolio would employ anaerobic digestion to convert food waste, sludge, yard waste and other organic matter into natural gas and material suitable for compost.¹³

The projects included in the NPS Portfolio would be undertaken by experienced RNG developers and operators in locations suitable for such facilities. The RNG companies will source waste streams from private hauling companies, public agencies or other sources. These waste streams are substantial in size, and may be facilitated if New York City or surrounding communities require greater recycling of food waste. Food waste is a high-quality stream that can be processed into RNG.

Con Edison will continue working with the RNG project developers to reach agreement on interconnection and commercial terms while the NPS Portfolio Filing is pending at the Commission. This will permit the developers to begin securing sites and waste streams, and make other preparations for construction. In the course of discussions, Con Edison expects to work collaboratively with the developers to address potential gas quality and interconnection issues and will also explore whether limited on-site storage can be included to enhance the amount and reliability of peak day supplies.

¹³ Anaerobic digestion is widely used in Europe and the Asia to process waste and is increasingly popular in the U.S. because of its potential to reduce greenhouse gas emissions and reduce reliance on landfills. The digestion process is a non-combustion process using bacteria that has minimal external odor or emissions affecting nearby communities.

The RNG projects will provide several benefits to Con Edison and its customers. The greenhouse gas emissions reductions benefits provided by the facilities will be particularly large, because the facilities will convert waste into useful energy, rather than allowing methane and other greenhouse gases to be emitted when the waste degrades at a landfill. In fact, because RNG production is so effective in reducing in greenhouse gas emissions, a dekatherm produced from converting waste into RNG will produce greater benefits than reducing customer usage by a dekatherm, depending on the feedstock. The following table, which compares an estimate of the carbon intensity of California RNG sources with the emissions avoided by reducing gas load, illustrates the potentially large greenhouse gas reduction benefits of RNG:

Table 5. Greenhouse Gas Impact of Renewable Natural Gas by Feedstock¹⁴

	Carbon Intensity (lbs CO ₂ e/Dt)	GHG Value per Dt (@\$50/short ton)
Energy Efficiency	117	\$2.93
Landfill Gas	97	\$0.50
Dairy Digester Gas	(578)	\$17.36
Wastewater Treatment	40	\$1.91
Municipal Solid Waste (MSW)	(48)	\$4.12

The RNG projects will also provide benefits to Con Edison’s gas system. The availability of local gas supplies on peak winter days, especially if storage is incorporated into the project designs, may enable Con Edison to reduce its purchases of delivered services.

Although RNG production is typically more costly than production of more conventional gas

¹⁴ Greenhouse gas impact of natural gas from U.S. Energy Information Administration ([LINK](#)); it reflects combustion value only. RNG greenhouse gas impacts from “The Feasibility of Renewable Natural Gas as a Large-Scale, Low Carbon Substitute”, UC Davis Institute of Transportation Studies, June 2016, pg. 36 ([LINK](#)). Study data and further information about specific project emissions available from California Air Resources Board ([LINK](#)).

supplies, RNG may provide supply cost benefits, because the environmental attributes associated with RNG production can earn as much as \$30 per dekatherm by selling the associated renewable gas credits through federal and state programs.

Con Edison will incur costs to implement the RNG proposals, in addition to the capital contributions sought by the RNG project developers. These costs include constructing and maintaining interconnection facilities, validating RNG facility design requirements are met, and on-going costs associated with operation of the facilities. Interconnection facility costs will include extending high-pressure distribution mains to the RNG facilities, installing over-pressure protection and heaters, and construction of communications systems. So that the RNG facilities are able to provide safe and reliable supplies, Con Edison also expects to inspect the facilities prior to commencement of deliveries to Con Edison's system and periodically thereafter to confirm that they remain in compliance with contractual and other requirements. On-going costs will include costs to monetize any environmental credits, schedule injections, and monitor and address gas quality issues.

e. Supply-Side Program Details: Delivered CNG/LNG Supplies

Approximately half of the peak day gas reductions from the NPS Portfolio is provided by CNG or LNG deliveries by truck, with some limited on-site storage. Con Edison intends to use these resources to provide additional support for system reliability. Deliveries of up to 40,000 dekatherms per day will be sought from two or three of the top RFP respondents under 5-10 year agreements. Up-front costs for these resources are principally related to the construction of interconnections, as most of the suppliers' costs will be recovered through capacity and commodity charges.

CNG and LNG injection facilities will be developed at 2-5 sites located in industrial areas in Westchester County, where upstream constraints are severe. The injection points will be leased and operated by third parties. Con Edison intends to use CNG deliveries at some locations and LNG deliveries at other locations. This will allow the Company to examine the pros and cons of each approach, and also provide additional experience working through permitting and operational issues specific to CNG and LNG.

The CNG sites will be similar both in scale and operations to Con Edison's existing CNG injection point in Rye. That injection point, which is located close to a residential area, is scheduled to cease operation in 2020, after completion of on-system capital work intended to relieve constraints into the Rye area. At the new sites to be developed for CNG injections, trailers containing CNG will be parked on-site during the winter season and will inject gas into Con Edison's gas system when called upon on winter peak days. The CNG trailers will be replaced with new CNG trailers delivered by truck several times a day when injections are required.

LNG injection sites will likely contain a storage tank smaller than 70,000 gallons (approximately 5,000 to 6,000 dekatherms), which is eligible to obtain a permit under a process recently established by the New York State Department of Environmental Conservation. On peak winter days, supplies can be replenished as needed with additional trucked deliveries.

The contributions required to advance development of CNG and LNG trucking arrangements are small compared to the contributions required for other components of the Non-Pipeline Solutions portfolio. In the CNG and LNG trucking arena, the fixed costs of capacity are

primarily borne by the supplier, who recovers them through capacity and commodity charges paid by Con Edison.

Similar to Company efforts related to RNG, Con Edison will continue working with the CNG/LNG project developers to reach agreement on interconnection and commercial terms while the NPS Portfolio Filing is pending at the Commission. This will permit the developers to begin securing sites and making other preparations for construction. In the course of discussions, Con Edison expects to work collaboratively with the developers to address interconnection issues.

Con Edison will incur costs to implement the CNG and LNG proposals, in addition to the payments that would be made to the CNG and LNG suppliers, including constructing and maintaining interconnection facilities, validating CNG and LNG facility design requirements are met, and on-going costs associated with operation of the interconnection. Interconnection facility costs will include extending high-pressure distribution mains to the CNG/LNG injection facilities, installing over-pressure protection, chromatographs, and heaters, and construction of communications systems. On-going costs will include performing periodic facility inspections, scheduling and overseeing injections, maintaining the interconnection facilities, and monitoring and addressing gas quality issues. Con Edison estimates that the incremental capital costs in connection with CNG and LNG injections will be approximately \$13.8 million and its on-going O&M costs will be approximately \$2.5 million from 2019 through 2024. Con Edison will incur additional labor costs of \$537,000 from 2019 through 2024. Con Edison proposes to recover these costs through the MRA via a surcharge paid by all firm gas customers. Con Edison will propose that these costs be rolled into base rates in its next rate filing.

f. Summary of Benefits of the NPS Portfolio

The NPS Portfolio, if fully executed as described in this filing, would result in numerous benefits to firm gas customers as well as significant societal benefits. These benefits include savings from reduced use of delivered services, reduced investments associated with customer growth in Con Edison transmission and distribution facilities and reduced investments in natural gas customer services as well as reductions in criteria pollutant emissions and greenhouse gas emissions. Table 6 describes these general benefits.

Table 6. Summary of NPS Portfolio Benefits

Savings from reduced use of delivered services	\$25 million
Savings from reduced need for T&D investments	\$180 million
Savings from reduce gas commodity purchases	\$85 million
Reduced Greenhouse Gas Emissions	5 million tons CO ₂ e

In additional to directly observable benefits, the Company notes that the NPS Portfolio will provide other benefits that are more challenging to quantify. Some programs in the NPS Portfolio will install energy efficiency measures and electrification of heating for low and moderate income customers. Some demand side measures included in the NPS Portfolio will also increase the comfort of customers, and will provide additional tools to allow customers to control heating levels. Other demand side measures will make investments in the efficiency of buildings that provide important community benefits, such as health care, emergency response, or educational facilities. Finally, all reductions to peak day usage will contribute to the reliability of the Con Edison natural gas system, which benefits all Con Edison’s natural gas customers.

The NPS Portfolio will also provide an opportunity for the Company and its customers to advance a number of promising technologies and provide leadership in achieving environmental goals. The energy efficiency efforts in the NPS Portfolio will substantially increase the level of energy efficiency in the Company’s service territory, and will test the ability of targeted energy efficiency to address upstream pipeline capacity constraints. The renewable thermal programs will advance air source heat pumps and geothermal heat pumps in the Company’s service territory, and increase the penetration of these technologies to levels significantly higher than current levels. The renewable natural gas proposals are the first of their kind in the Company’s service territory, and will bring renewable natural gas to customers at a volume that is significantly greater than other efforts in the region. All the demand side proposals and the renewable natural gas proposals will result in meaningful greenhouse gas benefits. Finally, all the proposals will result in increased employment opportunities in the Company’s service territory, including in cutting-edge technologies like heat pumps and renewable natural gas, positioning local companies to take lessons learned here and advance their businesses by providing services in neighboring areas.

VIII. Cost Recovery and Accounting Treatment

As discussed elsewhere in this document, the Company is proposing regulatory asset treatment because it would match cost recovery to the expected benefit period.¹⁵ The Company proposes, to recover the amortized costs at the Company’s weighted average cost of capital through its Monthly Rate Adjustment (“MRA”). Con Edison plans to propose in its next gas rate filing that any remaining, unamortized costs be incorporated into base rates, the same rate

¹⁵ In its initial Petition, Con Edison proposed to establish a regulatory asset for its costs to implement all of the Non-Pipeline Solutions.

treatment that is currently applicable to the Company's electric energy efficiency and non-wires solutions programs.

a. Non-Labor NPS Portfolio Costs

The contributions Con Edison provides to its partners will be the largest non-labor cost the Company incurs to implement the NPS Portfolio. These contributions include one-time payments for rebates, incentives, start-up costs and other purposes related to the development of demand-side measures. They will also include payments to RNG facility developers and CNG and LNG trucking providers to defray fixed costs. Con Edison estimates that contributions of \$262.1 million will be required between 2019 and 2024 to implement the NPS Portfolio, comprised of \$199.8 million for demand side proposals and \$62.3 million for supply side proposals.

Con Edison will also incur costs to administer the NPS Portfolio. For demand-side projects and programs, these costs will include contract administration, measurement and verification, and customer engagement and marketing costs. As noted above, Con Edison estimates that these costs will be approximately \$16.5 million between 2019 and 2024.

Con Edison proposes that the Commission authorize Con Edison to establish a regulatory asset so that non-labor NPS Portfolio costs would be amortized over a period of time that is equal to the average useful life of the technologies to be implemented.¹⁶ The average useful life for most of the investments contemplated in the NPS Portfolio, is approximately

¹⁶ With the exception of the CNG and LNG trucking projects, the projects and programs included in the NPS Portfolio are inherently long-lived measures that will deliver benefits over a period longer than ten years. The demand-side measures included in the NPS Portfolio have a weighted average life of approximately 20 years, because they include, for example, numerous long-lived measures like insulation, boilers, and heat pumps. Similarly, the RNG facilities to be constructed as part of the portfolio have an expected life of 20 years or more.

twenty years. A 20-year amortization period would provide numerous benefits to customers, including:

- **Mitigated Short-Term Bill Impact.** Amortization of the costs will lessen the NPS Portfolio short-term impact on customer costs and smooth bills over time.
- **Aligns Cost Recovery with Benefits.** Amortization of the contributions associated with the NPS Portfolio aligns the timing of cost recovery with the realization of program benefits, reduces the extent that current customers fund projects whose benefits accrue to future customers, and reduces the extent that future customers benefit from investments for which they did not contribute.
- **Enhanced GHG Reductions.** The Commission’s authorization of a regulatory asset with a return provides Con Edison with an appropriate economic incentive to contribute to greenhouse gas goals.
- **Provides Economic Parity for Investments in Non-Pipe Solutions and Traditional Gas Infrastructure.** Allowing Con Edison to amortize with a return will provide an economic incentive for Con Edison to invest in non-pipeline solutions, which will provide a long-term incentive for Con Edison to transform its business model.
- **Market Animation.** Amortization with a return provides the Company with an appropriate incentive to advance the use of innovative technologies such as heat pumps and renewable natural gas.

Con Edison proposes a shorter amortization schedule for contributions to support CNG and LNG truck deliveries. The contributions for these projects will support purchase of major equipment and construction of injection site facilities that will be relied upon throughout the contract life for CNG/LNG supply. Con Edison expects that delivered CNG and LNG supplies have contract terms of 5-10 years, not 20-year arrangements.

Since there is no rate mechanism currently in place to permit the Company to recover the cost of Company contributions to partners for the NPS Portfolio, the Company requests approval for an interim recovery mechanism until an allowance can be made for their recovery in base rates in Con Edison's next gas base rate case.¹⁷ Con Edison reiterates its request to permit recovery of any costs related to the carrying costs of a regulatory asset through the MRA. The Company plans to propose in its next rate case filing to recover these costs through base rates. In the alternative, Con Edison asks the Commission to permit Con Edison to establish a regulatory asset, to defer recovery until the next rate case, and accumulate interest at Con Edison's weighted average cost of capital during the deferral and recovery period.

b. Program Labor Costs (Demand-Side)

As detailed above, Con Edison expects that its incremental labor costs will rise as a result of the demand-side projects. Incremental labor costs will include the cost to oversee the implementation of the demand-side proposals, including administering the commercial aspects of the contracts with the demand-side proposal respondents included in the NPS Portfolio. The Company estimates that these costs will be approximately \$4.8 million from 2019 through 2024, when all of the selected demand-side solutions are in service.

¹⁷ If the Commission approves this petition, the Company expects that the Commission will order the Company to make an appropriate tariff filing to recover these costs through the MRA.

Company labor costs required to administer the BQDM effort have historically been recovered from all electric customers, as incurred, through the Monthly Adjustment Charge (“MAC”) until they can be included in base rates. Con Edison proposes to employ a similar approach for its labor costs to administer the NPS Portfolio. As labor expenses are incurred, they would be recovered through the MRA, a surcharge paid by all firm gas and transportation customers, until an allowance can be made for those costs in base rates as part of a subsequent rate case.

c. Additional Program Costs (Supply-Side)

Con Edison’s costs related to the supply-side measures will include on-going O&M costs, periodic commodity and capacity payments, and up-front costs, such as interconnection facility costs and related administrative costs, including costs to verify contractually-required construction and design terms were met by the RNG, CNG and LNG project developers. Con Edison proposes the following rate mechanisms to permit recovery of each of these cost streams.

i. Interconnection Costs

Con Edison estimates that it will incur \$20.3 million in capital costs to interconnect the RNG, CNG and LNG supplier facilities to its gas system, which is included in the total NPS Portfolio cost. The interconnection facilities constructed for the supply-side NPS Portfolio projects are physical assets of the Company, and as such will be included in rate base. The Company seeks authorization to recover its costs for these assets, including Con Edison’s weighted average cost of capital, over the primary term of each supply-side developer’s contract with Con Edison. Allowing recovery of each project’s interconnection costs over its contract term will better align project recovery with the benefits delivered by the project and will mitigate

annual rate impacts. Con Edison proposes to recover these costs through the MRA, pending their inclusion in rate base in a subsequent rate filing.

ii. Commodity and Capacity Charges

The RNG, CNG and LNG projects will require payment of on-going charges for commodity, and, in some cases, capacity charges. These charges are comparable to the commodity and capacity charges Con Edison presently pays to providers of delivered services, and should be recovered from all firm customers in a manner similar to delivered services. Con Edison proposes to assign a portion of its costs to purchase commodity from RNG, CNG and LNG providers to its firm full-service customers, as well as the ongoing capacity charges, and to recover the assigned costs through the Gas Cost Factor (“GCF”). Any environmental credits associated with the purchase of RNG volumes would be distributed through the GCF as well. The remainder of the RNG, CNG and LNG commodity purchase costs and the ongoing capacity charges, offset by associated environmental credits, would be recovered from Energy Services Companies (“ESCOs”).

iii. O&M

As discussed above, Con Edison expects that its on-going annual O&M costs will rise as a result of the supply-side projects. Incremental O&M costs will include the cost of operating and maintaining the interconnection facilities for the RNG, CNG and LNG injection points, including costs to monitor and address gas quality issues. They will also include employee costs to administer the commercial aspects of the contracts, especially the sale of any environmental credits shared by the Company for the benefit of its customers. We estimate that these costs will be approximately \$4.3 million from 2019 through 2024. Con Edison proposes to recover these

costs through the MRA via a surcharge paid by all firm gas customers. Con Edison will propose that these costs be rolled into base rates in the next rate filing and any future rate filings.

IX. Request for Budget Flexibility and Timeliness

a. Flexibility

Con Edison proposes for approval a budget based on the respondents' proposals to the Non-Pipeline Solutions RFP and Con Edison's requested clarifications and revisions. The Company will refine the programs within the NPS Portfolio and requests the ability to make changes as we move through the implementation process within the total NPS Portfolio costs.

The Company seeks authorization to shift funds among the projects and programs that comprise the NPS Portfolio and any new projects that the Company finds feasible and cost-effective, provided the total costs of the NPS Portfolio remain below the overall budget presented above and the portfolio BCA shows net benefits for customers. Allowing such budget flexibility will enable Con Edison to move quickly to make any changes required to individual project or program scope so that the benefits of the NPS Portfolio are provided to customers as quickly as possible.

b. Timeliness

The Company respectfully requests timely Commission action, which will make it more likely that RFP respondents' proposals can be implemented as proposed. The Company also notes that timely action would make it more likely that customers will benefit sooner from the reliability benefits provided by the NPS Portfolio proposals. For example, the proposals for trucked supplies of natural gas could have a meaningful impact on the demand/supply balance in portions of the Company's service territory as soon as the winter of 2019-2020. The Company is

prepared to work with Staff and also other parties, as appropriate, to provide needed supporting information.

As noted in the Petition, if the Commission approves this NPS Portfolio Filing, the Company will provide the Commission with annual reports that would include NPS Portfolio expenditures and major activities. The Company plans to consult with Staff on the contents of the report.

X. Shared Savings Incentive Mechanism

In the Petition, the Company sought a shared savings mechanism for the Non-Pipeline RFP proposals, specifically a 70/30 customer/shareholder sharing of any net savings. The net benefits will be quantified by subtracting the present value of the costs from the present value of the benefits identified in the Company's BCA analysis. The Company proposes to retain 30 percent of initial net benefits and collect those benefits from customers; customers will receive 70 percent of initial net benefits. The Company also proposes a true up to the incentive calculation. Any cost overruns or underruns will be shared 50/50 with customers and credited against the initial net benefits, with maximum Company incentives capped at 50 percent of initial net benefits (in the case of significant cost underruns compared to initial estimates) and a minimum Company incentive floor of 0 percent of initial net benefits (in the case of significant cost overruns). The Company proposes to convert the Company-retained incentive of 30 percent of net benefits into an incentive on a per Dekatherm reduction basis and begin collecting the per Dekatherm incentive as non-pipeline individual projects, which are part of the NPS Portfolio, are executed.

Con Edison requested that any program incentives be recovered from firm customers via the MRA over up to 24 months from the point at which the incentives are deemed to be earned in order to provide for revenue recognition at the time the incentive is earned. Shared savings overall will result in customers receiving more benefits for a number of reasons. Shared savings encourages the Company seek to enhance the net savings, 70 percent of which is retained by customers, by increasing the benefits from a solution, reducing the costs of a solution or both. Shared savings also provides the Company with an incentive to achieve targeted levels of net savings, making it more likely that customers receive the economic and environmental benefits from the NPS Portfolio. Shared savings also encourage the Company to seek to implement non-pipeline solutions that may be less familiar and encourages the Company to undertake innovative, portfolio-level approaches to gas system planning, which include non-traditional approaches that may result in lower overall customer costs or higher overall benefits. Con Edison proposes that it will recover shared savings incentives through the MRA.

XI. Customer Bill Impact

The Company has analyzed the cost impact of the NPS Portfolio on typical residential heating customers and small commercial customers. In 2025, when the investments contemplated in the NPS Portfolio are complete, the costs of the investments are projected to increase a typical bill by 1.5 percent for typical residential heating customers and small commercial customers. This analysis does not account for any savings that may arise from the NPS Portfolio investments, nor does it reflect the value of benefits that are not typically included in a customer bill, e.g. greenhouse gas emissions reductions. As noted previously, because the BCA ratio for the NPS Portfolio is greater than 1.0, customers should receive net benefits that are greater than the costs of the NPS Portfolio.

XII. Conclusion

For the reasons discussed in this filing, Con Edison requests that the Commission approve the Non-Pipeline Solutions Portfolio budget, including budget flexibility and the proposed cost recovery mechanisms.

Dated: New York, New York
September 28, 2018

Respectfully submitted,

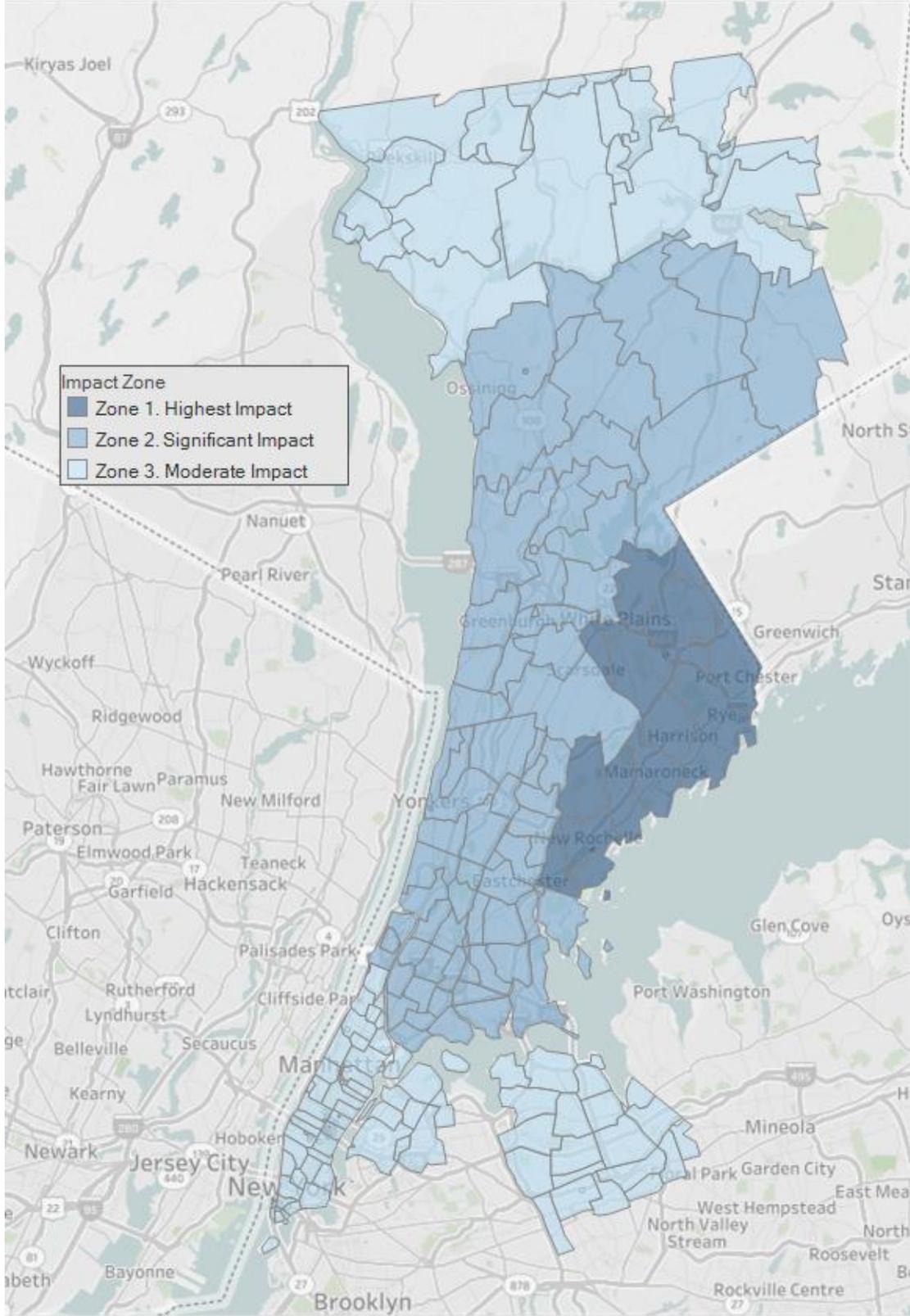
CONSOLIDATED EDISON COMPANY
OF NEW YORK, INC.

By its Attorney

/s/ Enver Acevedo _____

Enver Acevedo
Associate Counsel
4 Irving Place, 18th floor
New York, NY 10003
(p) 212-460-3762
(f) 212-677-5850
E-mail: acevedoe@coned.com

Appendix A – NPA RFP Zones Map



Appendix B – BCA Sensitivity Cases

The selection of the NPS Portfolio was informed by two sensitivity BCA cases: a case in which the benefits provided by solutions was valued based on the avoided projected cost of a pipeline expansion project, and a case intended to estimate the benefits of potential projects and programs using a greenhouse gas emissions benefit factor comparable to the lifecycle cost of natural gas. Nearly all of the credible projects and programs received by Con Edison achieved higher benefit-cost ratios in the two sensitivity cases.

For the first sensitivity case, shown in Table B-1, the peak day load reductions and supply increases provided by the projects and programs included in the portfolio were assumed to reduce Con Edison's need to purchase a combination of pipeline capacity and delivered services based on their location. Each proposal was assigned a locational score, based on hydraulic flow modeling, that described the proportion of the solution's peak day load reduction or local supply enhancement that would reduce Con Edison's need to receive gas from the constrained mid-Westchester pipeline. Any portion of the load reduction or local supply enhancement that did not reduce Con Edison's need to receive gas from the pipeline was assumed to reduce the need to purchase delivered services.

**Table B-1. Sensitivity 1 BCA Results for NPS Portfolio
(Pipeline Capacity Value Case)**

	NPS Portfolio	
	Peak MDt/Day	BCA Results
<u>Demand-Side</u>		
Demand Response	-	-
Energy Efficiency	25.0	1.05
Heat Pumps	12.4	2.22
Other Electrification	-	-
Other Demand-Side	-	-
Subtotal	37.5	1.35
<u>Supply-Side</u>		
RNG	7.1	1.03
CNG/LNG Trucking	40.0	1.39
LNG Liquefaction	-	-
Propane-Air	-	-
Subtotal	47.1	1.20
Grand Total	84.5	1.31

The results of this sensitivity case influenced Con Edison’s decisions about which projects and programs to include in the NPS Portfolio and which ones to exclude. The BCA scores for the demand-side projects and proposals located in the Bronx and Lower Westchester County generally increased. However, other electrification and demand response projects continued to receive low scores in the BCA. By contrast, the BCA ratios for most of the credible supply-side projects rose significantly, because they would be located at favorable points on Con Edison’s system. In addition, since supply-side solutions provide fewer benefits than demand-side measures, any increase in their benefits valuation has a correspondingly higher impact on their BCA scores.

For the second sensitivity, shown in Table B-2, Con Edison worked with its third-party evaluator to examine, at a high-level, the impact of lifecycle greenhouse gas emissions of natural

gas on the NPS Portfolio BCA. While there is no single, authoritative source for these emissions, a cluster of studies suggest that fugitive emissions of natural gas and emissions associated with the transportation, processing, and storage of natural gas add significantly to its greenhouse gas impacts.¹⁸ To provide an indication of the greenhouse gas emission impacts of the RFP responses, the sensitivity examined the impact of increasing each proposal’s greenhouse gas benefits or costs by 50%.

Table B-2. Sensitivity 2 BCA Results for NPS Portfolio (High GHG Value Case)

	NPS Portfolio	
	Peak MDT/Day	BCA Results
<u>Demand-Side</u>		
Demand Response	-	-
Energy Efficiency	25.0	1.08
Heat Pumps	12.4	1.79
Other Electrification	-	-
Other Demand-Side	-	-
Subtotal	37.5	1.27
<u>Supply-Side</u>		
RNG	7.1	1.03
CNG/LNG Trucking	40.0	0.54
LNG Liquefaction	-	-
Propane-Air	-	-
Subtotal	47.1	0.80
Grand Total	84.5	1.14

¹⁸ For example, a report commissioned by the New York City Mayor’s Office of Long-Term Planning and Sustainability estimates that the life-cycle greenhouse gas impact of natural gas delivered to New York City is approximately 36% higher than the 117 lbs. per MMBTU typically attributed to combustion of natural gas. See “Assessment of New York City Natural Gas Market Fundamentals and Life Cycle Fuel Emissions,” New York City Mayor’s Office of Long-Term Planning and Sustainability, November 2011, pg. 45.

The results of the second sensitivity case did not change any of Con Edison's decisions to include or exclude RFP responses from the portfolio. Although most of the credible demand-side projects achieved higher BCA scores in the second sensitivity analysis than in the base case, nearly all of the proposals were already included in the NPS Portfolio anyway. The small number of "other electrification" measures that were excluded from the portfolio as a result of their low BCA scores received higher scores in the sensitivity. However, those scores were still too low to justify including them in the NPS Portfolio. Similarly, the BCA scores for the demand response proposals in the second sensitivity case did not improve sufficiently to justify including them in the portfolio. BCA values for the demand response measures remained low for two reasons: 1) demand response is expected to be activated on only a small number of days each winter season and would, therefore, reduce gas consumption only a small amount over the course of a winter season, and 2) some measures would use electricity instead of natural gas on peak winter days, which would likely increase the use of oil to fuel electric generation.

Among the supply-side projects, BCA ratios do not change significantly in the second sensitivity case. The BCA ratio for the RNG projects is slightly higher, since RNG facilities reduce reliance on natural gas produced from conventional methods. However, the BCA score increase is small, because the greenhouse gas benefits of RNG facilities are achieved principally by preventing the waste streams used as an RNG feedstock from releasing methane and other strong greenhouse gases during the normal process of decay at landfills. Those benefits were already reflected in the reference case. The BCA scores for CNG and LNG trucking change even less in the secondary sensitivity analysis. Although the proposals receive lower BCA scores as a result of the greenhouse gas emissions associated with compressing and/or liquefying natural gas for delivery by truck, the impact of using a higher greenhouse gas value for natural

gas is small. This is because Con Edison expects to utilize CNG and LNG only on peak winter days, so the gas volumes delivered over the winter season would be relatively small compared to the capacity provided.

Appendix C - Annual Non-Pipeline Solutions Portfolio Capital Contributions and O&M Costs

	2019	2020	2021	2022	2023	2024	Total
<u>Capital Costs</u>							
<i>Demand-Side</i>							
Incentives & Implementation - RFP	26,653,162	37,690,630	33,386,220	38,912,901	35,689,253	27,431,491	199,763,656
Incentives & Implementation - In-House	1,067,000	1,067,000	1,067,000	1,067,000	1,067,000	1,067,000	6,402,000
Program Admin. (Non-Labor)	1,937,378	2,810,488	2,804,885	3,170,501	3,156,769	2,572,422	16,452,443
Subtotal	29,657,540	41,568,118	37,258,105	43,150,402	39,913,022	31,070,912	222,618,099
<i>Supply-Side</i>							
Capital Contributions to Partners	1,800,000	20,500,000	40,000,000	-	-	-	62,300,000
Interconnection	12,025,000	-	8,295,000	-	-	-	20,320,000
Subtotal	13,825,000	20,500,000	48,295,000	-	-	-	82,620,000
 Total - Capital Costs	 43,482,540	 62,068,118	 85,553,105	 43,150,402	 39,913,022	 31,070,912	 305,238,099
<u>O&M Expenses</u>							
<i>Demand-Side</i>							
Program Admin. (Internal Labor)	813,680	813,680	813,680	813,680	813,680	813,680	4,882,080
Subtotal	813,680	813,680	813,680	813,680	813,680	813,680	4,882,080
<i>Supply-Side</i>							
Program Admin. (Internal Labor)	232,480	232,480	232,480	232,480	232,480	232,480	1,394,880
Other O&M	240,000	240,000	600,000	600,000	600,000	600,000	2,880,000
Subtotal	472,480	472,480	832,480	832,480	832,480	832,480	4,274,880
 Total - O&M	 1,286,160	 1,286,160	 1,646,160	 1,646,160	 1,646,160	 1,646,160	 9,156,960

Appendix D - Additional Demand-Side Program Details

The portfolio of demand-side programs can be broken down into three distinct program concepts:

1. Independent Programs – a self-contained program that does not generally rely on or stand to benefit from the resources of other Con Edison programs, such as for co-incentives and co-marketing activities, in order to achieve its demand reduction targets. This category mostly consists of turnkey style programs where the customer, project sites, and even specific energy conservation measures (“ECM’s”) have been identified in advance by the program implementer.
2. Integrated Programs – a program that generally relies on the resources of another pre-existing Con Edison program, such as for co-incentives and co-marketing activities, in order to achieve its energy efficiency and demand reduction targets. In order to minimize customer confusion and avoid duplicative implementation efforts, the program administrator will typically streamline the participation process so that the customer will only need to interact with a single entity when it comes to submitting paperwork, obtaining contractor installation and quality control services, and receiving incentive payments. While the pre-existing program may be available to a variety of customers, the NPS program, in some cases, may be limited to customers located in a targeted area.
3. Technology-Based Micro Programs – an independent program that focuses on promoting a new ECM technology or a new application or delivery mechanism for an existing ECM technology to a specific customer segment. These programs typically have short-term goals and targets and will initially be implemented for a period of one to two years, after

which the ECM may be incorporated into a larger, longer term program or the new application or delivery mechanism may be expanded.

One common feature across all demand-side NPS programs will be the project eligibility requirements. To be eligible for incentives each project must satisfy the following criteria:

- Project must be situated within Con Edison's service territory and either presently have firm gas service or the potential to switch to firm gas service supplied by Con Edison.
- ECM may not directly involve switching to oil or propane fuel.
- ECM must minimally remain in service for 5 years (3 years for demand response measures)
- ECM must be a commercially-proven technology.
- ECM must not have been installed prior to the date of program launch.

Con Edison intends to manage the demand-side NPS programs at the portfolio-level, which includes the use of a portfolio-level benefit-cost analysis ("BCA"). This will allow for the flexibility to adjust individual program budgets, goals, delivery mechanisms, and customer engagement strategies based on changing technology mixes, costs, and customer preferences, among other factors. This portfolio-level management approach enables responsive, intra-year and inter-year movement of funds, where appropriate, and other resources among programs based on opportunities, cost effectiveness, customer feedback, and market and operational factors. This approach also mirrors the flexibility that has allowed Con Edison to successfully manage similar portfolios (BQDM, NWS) on the electric side.

The Company intends to use available NPS funds over a six-year period (2019-2024), retaining flexibility to shift funds between years.

The demand-side Energy Efficiency portion of the NPS Portfolio will initially include approximately ten distinct program opportunities. As discussed in section VII. B. of this report, the implementation of these programs will be conducted either by the customer, by an implementation contractor, or by Con Edison. In the latter case, Con Edison will be directly responsible for program implementation. A more detailed description of this program approach can be found in the following paragraphs¹⁹:

1. Commercial & Industrial NPS Program

The Commercial & Industrial (“C&I”) NPS Program has been designed to function as a supplemental, yet fully integrated component of Con Edison’s existing C&I Gas EE Program. The Company currently operates the C&I Gas EE Program under its portfolio of Enhanced Gas Energy Efficiency Programs. The purpose of this program is to provide prescriptive and customized ECM rebates to large commercial facilities including universities, hotels, and hospitals.

The C&I NPS Program will enable Con Edison to target customers located in proximity to the highest peak gas day impact zone and promote innovative ECM’s that yield greater peak day demand reductions than ECM’s typically adopted by customers under the C&I Gas EE Program.

¹⁹ Note that the three programs discussed were not submitted as part of the NPS RFP responses but were instead directly developed by Con Edison.

It is anticipated that the C&I NPS Program will extend through 2024 concurrently with the C&I Gas EE Program and have an initial incentive and implementation cost of \$3.4 million over 6 years.

The strategy behind the C&I NPS Program will be to drive the highest peak-day gas consuming commercial and industrial customers located within the targeted zone to undergo deep energy efficiency upgrades within their facilities. This will be done by offering higher incentive rates than are normally available through the existing C&I Gas EE Program. These incentives will be focused on ECM's that impact the facility's heating load such as insulation on heat exchangers, valves, and pipe fittings, replacement of broken steam traps, boiler replacements, and control systems upgrades to building management systems.

The C&I NPS Program will be implemented in the same fashion as the current C&I Gas EE Program. This means that internal Con Edison personnel will manage most of the day-to-day project sales, engineering, quality control inspections, and measurement and verification (M&V) functions. However, implementation funds will be needed to cover any project engineering and quality control inspection costs that need to be outsourced to a third party vendor. The current network of market partners will perform the installations of the ECM's.

2. Home Heating & Hot Water (“HHHW”) Optimization and Commercial Laundry Programs

The HHHW Optimization and Commercial Laundry Programs are the two technology-based micro programs that will be included within the NPS Portfolio. Each of these programs will focus on several ECM technologies that, while being commercially available, have yet to make any significant penetration in Con Edison's service territory. As an example, for the commercial laundry equipment market there are now available moisture sensing and valve modulation

retrofit products for dryers that can improve energy efficiency performance without having to replace the entire appliance. The goal of this program will be to enhance these opportunities by offering incentives and bringing together both customers and contractors within this market segment while exploring non-traditional delivery channels. An ECM example for the HHHW Optimization Program is the new class of smart home heating maintenance products. These products use a digital platform that constantly monitors the performance of the home's heating system and sends out alerts for maintenance needs as they occur. Using electronic sensors scattered throughout the system, the smart home heating maintenance product can prolong the life of a boiler or furnace by detecting safety or equipment problems before they turn into expensive repairs or even catastrophic failures.

Appendix E - Summary of RFP and RFP Process

Summary of RFP

On December 15, 2017, Con Edison released its Non-Pipeline RFP. This RFP sought to identify alternatives to the construction of new interstate pipeline capacity or increasing use of delivered services that would otherwise be necessary to address Con Edison's growing firm natural gas customer demand/needs. Potential respondents were advised that, even if Con Edison were unable to avoid construction of new pipeline infrastructure, Con Edison would likely contract for an innovative portfolio of non-pipeline measures geared to reduce its reliance on short-term delivered services and provide other local system benefits and environmental benefits to Con Edison and its customers. To underscore the scale of the opportunity and encourage respondents to devote significant resources to the development and execution of their proposals, Con Edison stated that it would need to expend at least \$100 million per year through 2023 to fully address its pipeline capacity needs through other means.

The RFP sought a broad range of responses to address Con Edison's customer heating needs without relying on the use of interstate gas pipeline infrastructure. Respondents were invited to propose ambitious solutions to reduce Con Edison's forecasted firm gas customer load or solutions that would provide injections of natural gas directly into Con Edison's gas distribution system. The measures that Con Edison envisioned might be included in RFP responses are: energy efficiency, demand response, heating electrification, renewable natural gas or RNG, thermal storage, natural gas storage, and CNG and LNG deliveries by truck or barge. The RFP also indicated that Con Edison would be willing to consider other innovative approaches, seeking to encourage creative solutions.

The RFP allowed respondents great flexibility to offer aggressive usage reductions and non-pipeline supply additions. Although Con Edison encouraged respondents to propose projects at specific locations if such locations were already known, the RFP made clear that respondents could propose solutions for which a specific location or customer would be identified later. Further, the RFP did not limit demand-side solutions to Con Edison's existing firm gas customers. It allowed respondents to propose programs to convert consumers currently using fuel oil for space or water heating to electricity.²⁰

Nonetheless, the RFP set criteria for responses to address Con Edison's immediate capacity shortfall and meaningfully reduce the Company's reliance on delivered services prior to 2023, the date when Con Edison estimated that an interstate pipeline solution would be needed and could be brought into service.

- Respondents were advised that solutions would need to rely on commercially-proven technologies that Con Edison could rely on if it made a decision to defer construction of pipeline capacity or reduce its use of delivered services.
- Responses were also required to provide substantial relief during periods when the gas distribution system needs supplies, by providing at least 25 thousand? dekatherms of relief on peak winter days (measured over a 24-hour period), sustaining that relief for at least five days per winter season designated by Con Edison (including at least three consecutive days), and remaining in service for at least three to five years, preferably longer.

²⁰ This flexibility was justified because oil to gas conversions are a major contributor to forecasted demand growth on Con Edison's natural gas distribution system.

- Although the RFP indicated that Con Edison welcomed proposals undertaking projects anywhere in its service territory, it indicated that projects providing relief in lower Westchester County, the Bronx and other areas most affected by interstate pipeline capacity constraints would be prioritized. To aid respondents in targeting their projects, Con Edison divided its service territory into three zones based on the level of need for non-pipeline solutions. These zones are shown on the map in Appendix A. Zone 1 included those areas of Con Edison’s service territory supplied primarily through an interstate natural gas pipeline located in the mid-Westchester portion of the Company’s service territory. The Con Edison gate stations served by the pipeline in southeast Westchester are at their physical maximum capability on the coldest days.²¹ Zone 2 included areas of Lower Westchester County and the Bronx served in whole or in part from the other Con Edison gate stations on the same pipeline. Zone 3 included other areas of Con Edison’s gas system, including Northern Westchester County, all of Con Edison’s Queens service territory, and most of Manhattan, which are served by other pipelines that are not as congested on the coldest winter days. Projects in Zone 3 may help reduce Con Edison’s need to procure short-term delivered services.
- The RFP seeks to continue and sustain environmental progress achieved through New York City’s Clean Heat program and similar initiatives in Westchester County. Respondents were advised that demand-side measures that would increase customers’ emissions of greenhouse gases or criteria pollutants, such as projects that would

²¹ The Company is currently using trucked CNG supplies on a temporary basis at one gate station supplied by the pipeline, while it prepares an on-system upgrade that, when completed, will provide additional supplies to the area served by the gate station.

achieve natural gas peak day reductions by switching customer usage to dirtier fuels like fuel oil, propane or wood, would not be accepted. Further, the RFP encouraged respondents proposing demand-side measures to utilize high-efficiency technologies, such as electric heat pumps, rather than low efficiency electric resistance heating.

Marketing and Communications of the RFP

Con Edison encouraged a large response to its Non-Pipeline RFP. Con Edison developed a communications and marketing plan, which included a sustained outreach effort to organizations and stakeholders representing potential bidders and relevant trade organizations, to raise awareness about the potential scope and scale of the upcoming RFP and to encourage potential bidders to offer a range of potential solutions. The Company also communicated with other important stakeholders about the upcoming RFP, including large environmental advocacy groups and groups representing customer interests, for feedback on the criteria to be included in the RFP and as an additional effort to raise market awareness of the RFP.

In early December, prior to issuance of the RFP, Con Edison invited each of the groups previously contacted as well as several thousand other organizations that have previously expressed interest in participating in Con Edison's Non-Wires initiatives, to attend a webinar to learn more about the upcoming Non-Pipeline Solutions RFP and discuss potential tweaks to maximize potential responses. The webinar was attended by more than 100 persons. The Company released the RFP on Con Edison's internet site, and also filed the RFP with the

Commission under the Smart Solutions docket on the New York State Department of Service (“NYS DPS”) Document and Matter Management system (“DMM”).²²

Following release of the RFP in December 2017, Con Edison took additional steps to continue promoting the RFP. It continued its outreach to potential respondents and sought to broaden its efforts through other means. A Company press release emphasizing the expansive scale and scope of the RFP was released, leading to the publication of numerous articles in industry periodicals. Although use of social media was not a major part of the marketing campaign, discussion of the initiative on social media platforms expanded awareness of the effort. A dedicated webpage on Con Edison’s website provided an opportunity for interested persons to easily find and access information about the RFP.²³

During the 75-day period in which responses were accepted, potential respondents had the opportunity to learn more about the RFP and ask questions. Con Edison held three cycles of written Q&As and maintained a cumulative set of Q&A responses on its website. Additionally, a second webinar, which was announced through a mass email and on the dedicated Non-Pipeline Solutions webpage, was held in late January 2018. Attended by more than 130 persons, it provided background about the RFP and application process. A recording was available on the Non-Pipeline Solutions webpage throughout the 75-day RFP window. Con Edison also worked directly with more than a dozen potential gas supply providers to discuss interconnection, gas quality and other issues in connection with LNG, CNG and renewable natural gas supplies.

²² The RFP can be accessed on the NYS DPS DMM at the following web link: <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={516C1F0B-AE18-4FF2-8780-15119BA07C0F}>

²³ Because the RFP deadline has passed, the original webpage on the Con Edison website has been removed from the website. Some of the information contained on the original RFP webpage can be accessed at the following web link: <https://www.coned.com/en/business-partners/business-opportunities/non-pipeline-solutions>